DOCUMENT RESUME

ED 282 577 IR 051 944

AUTHOR Carrion-Rodriguez, Guadalupe; Quevedo-Procel, Jose
TITLE Information Professionals for the Industrial Sector.
PUB DATE Sep 86
NOTE 24p.; Paper presented at the Pre-Congress Seminar of the Study Committee on Education and Training of the International Federation of Documentation (Montreal, Ontario, Canada, September 8-11, 1986).
PUB TYPE Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Access to Information; *Developing Nations; *Industry; Information Science; *Information Scientists; *Information Services; Information Technology; *Library Education; *Professional Education; User Needs (Information)
IDENTIFIERS Information Management

ABSTRACT

In today's information society, the greatest challenge for information professionals is to accept and understand the information world and to identify their own professional roles. These roles may vary according to the needs and stages of development of different countries, for not all countries are equally aware of the importance of information, and the development of specific information services has been uneven. Although information is crucial to every country's economic development and the industrial sector badly needs information for its activities, industrialists in developing countries do not have a solid base of experience as information users, a situation which often results in an information vacuum. To cope with these gaps, information professionals must learn to understand the industrial sector and to successfully fill their necessary roles as information managers, promoters, and counselors. Despite this need for information professionals, there is a lack of adequate training programs in developing countries such as Mexico and the majority of the Latin American countries, and the emphasis in existing programs is primarily on academic, rather than professional, aspects. Increased efforts are needed by both universities and professional institutions to identify the needs of the industrial sector and to define appropriate formal education programs for information professionals. Seven references and an 18-item bibliography are included. (KM)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED282577

# INFORMATION PROFESSIONALS FOR THE INDUSTRIAL SECTOR

GUADALUPE CARRION-RODRIGUEZ
JOSE QUEVEDO-PROCEL

FID/ET Pre-Congress Seminar
Montreal, Canada
8-11 September 1986.

IR051944

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
G.Carrion-Rodriguez

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

BEST COPY AVAILABLE

ABSTRACT

The paper deals with several aspects related to information services for industry, drawing attention to what might be the general situation in developing countries.

There are considerations about the peculiar characteristics of the industrial sector and its role as contributor to the socio-economic development of a country.

The main emphasis of the paper is on the attributes required by those information professionals serving this heterogeneous and growing sector.

In this respect there are indications concerning the aspects that should be known by these professionals.

So far, present programs offered by academic institutions respond only partially to the needs of the industrial sector, leaving a gap in terms of what should be taught in respect to what the information professional will need for its performance.

Reference to the areas that should be covered by formal programs are indicated.

INTRODUCTION:

The topic assigned to this session in the FID/ET Seminar deals with, we dare to say, the most important aspect of the whole process of information transfer: personnel. But the present paper, as requested, pretends to be more specific.

This FID/ET Seminar devotes a session to deal with personnel for information services for industry which, due to is peculiar characteristics, demands our professional considerations in order to identify the existing problems that have limited or prevented us from giving the information services required, and, if such is the case, to consider alternatives, which accordingly to specific situations, could be applicable to different working environments, mainly in the so called developing countries where information deficiencies have been, and still are, so acute.

It is dangerous to make a wide generalization concerning the state of development of information services of several countries, even in the same region.

Much more so when a Seminar like the one we are attending now, pretends to offer interesting bits to professionals drawn from various settings and different "worlds". No doubt, one can rely on the professional literature, talks with colleagues and friends or even visits to different institutions, to verify assumptions, or modify schemes, sometimes wrong or misleading.

But the direct and personal interaction among people seriously committed to the profession, and immersed in activities related

to the development of human resources in this field, is one of the benefits of Seminars like these.

As indicated, we do not pretend to make general statements, although some of them, undoubtedly reflect our years of work in the profession, devoted to practical activities in the provision of information services to the industrial sector, as well as our experiences and interaction with the academic environment, where the development of human resources for library/information tasks is formally given.

With this general background we bring to this Session some of our thoughts on this topic which, we hope will contribute something to the organizers and the participants of the Seminar, for the proposals or conclusions that will be drawn.

## THE INFORMATION SCENERY

The intention in dealing with this specific aspect, is simply to draw a frame of reference for our considerations. After works such as the ones of Bell, Toefler, Naisbitt, or Lancaster, to mention just a few, where there are astonishing and, in some instances even controversial statements about the role information plays in the present society, which tends to dominate all fields of the human activity, if it has not yet done so, and is bound to produce more profund changes in the near future, what it is left to us is to permanently react and proact to the way information influences

our lives and our activities, at the same time we contribute to the information world we live in as information professionals, - embracing under this broad term librarians or/and information specialists, because as Ching-chi-chen said "...all of those who - are engaged in the fields of and professions where "information" is a common word should work together and in harmony, rather than in isolation or competition" (1)

It is a reality. We are immersed, consciously or unconsciously, in the so called post industrial or information society, in which we face the greatest information explosion ever happened, and for which information technology is "one of the technologies that will be driving forces in the next decade" (2) and is determining changes at an even faster pace.

The duty for those of us engaged in this activity, and for those - who will be in the next future, is to be fully aware of what does that mean for the society or the community we serve, the role we play, and what it is expected from us in the environment we contribute to. But also we should give a consideration to what it means to us, professionally.

The more we are convinced of the importance of our role, the more we will be ready to understand different needs, to be more willing to serve our community and to learn, always learn, about the ever changing information environment.

Information is one of the main ingredients of our present world. -

From day to day we need more information for our daily activities: from those highly sophisticated to the ones which are the result of simple and routine tasks. It is the generation, processing, dissemination and finally, digestion of information, which in turns determines the creation of more data, or information. If this is an overwhelming reality in developed countries, where a vast percentage of the population is linked, in one way or another, to information activities, from its production to its applications, it is also true for other countries, even the so called developing, although the strength of this linkage varies from one to another.

So the challenge is here for us: accept and understand this information world and identify our role as information professionals.

A role which has to fit into and respond to the needs of individual countries, according to their specific stages of development.

But despite information has turned out to be such an important ingredient in our present world, not all countries are equally convinced or aware, either at the public or private level, of its benefit, and thus, resources for the development of information infrastructures, of specific services, is uneven. To what extent could we say that the poor or weak assignation of resources for these purposes influences negatively or positively the economic and social development of a given country?

Undoubtedly, there is a difference between those countries which have allocated resources to strengthen information services, and

those who have not. Those greatly advanced, are at the forefront of science and technology, whereas there are others, which still show a very weak development in this field. Those are the leaders, the ones which push and create, the rest, unfortunately in terms of numbers the largest part, are the followers, the ones which adapt, but also, in many instances, adopt blindly. It is here - where technological dependence is clearly given.

What is then the real chance of success and advancement for countries in which there is very little innovation, where there are no conditions for entrepreneurship minds to flourish, where imitation, if at all given, is the only weak demonstration of technological activity? Sometimes it seems to us that we are immersed in a vicious circle: information actions do not receive support because there are no men capable of promoting and carrying them out, and they are not found because there are no incentives, no challenges in the information sector, which in turn has not yet made a strong impact, in supporting technological activities.

There is no doubt that "if developing countries want to grow and - have a fair share of the world's wealth, what they have to do is to foster the growth of people by helping them to become more knowledgeable and by helping them to use information as a working tool, both at the educational level and at the professional level"(3)

THE INDUSTRIAL SETTING AND ITS INFORMATION NEEDS.

We do not pretend here to say that information is more important for some sectors than for others. It is not to us to evaluate if the information needs in a research institution, within an academic setting, or those of a college student, or of a housewife, are more or less important. The stated information needs of a user require a response, and information professionals have the responsibility of finding out the right and prompt solutions, to the best or their knowledge and abilities. This is our duty!

But this complex puzzle of needs and demands, we must realize, is certainly of crucial importance for the economic development of any country. "The notion that knowledge can create economic value is generally absent from most economic analysis, though there is some evidence that it is now beginning to be taken into account." (4) It is natural, then, to recognize the need of a very close interaction between information support activities - and the community which depends so much on information for the tasks it has to undertake: productivity improvement, a concept now in such a vogue, implementation or modification of organizational structures; or questions dealing with the introduction of new products into the market, alternatives of raw materials, or such questions as innovation, commercialization and many more. Because, "whether a company is involved in farming, manufacturing, distribution, transportation, retailing, mining or energy-providing, its management, marketing, inventory, distribution and other operating controls are basically information handling activities". (5)

This is a sector where one can see in a very objective way, the benefits or results of the information provided. The appropriate information delivered on time, helps in making the difference between those countries which have improved their quality of living, from those who have not. Decision-making relies or depends upon information of a very diverse nature, formal and also informal in terms of kinds, level of sophistication, language, etc.

Information which is not only bibliographical. Statistical, economic, commercial data is, according to the circumstances as important as technical data. It might be a very factual data say, on quantities produced, type of products, industrial capacity, identification of competitors, or it might deal, among other topics, with aspects such as the kind of equipment to be used, alternative processes, plant layout, optimization and use of by-products, as well as questions dealing with regulations, incentives, standards, specifications, patents, patent procedures and so forth. "Commercial and business or socio-economic information is sometimes regarded as being quite separate from scientific and technical information and therefore needing a different approach. This is not so... an information service has to be aware of the whole range of the company's interest. In the decision-making process an R&D manager needs a good deal of commercial and "social" information about the products that are being investigated and developed for the company, just as a commercial manager requires scientific and technical information about the products marketed under his supervision".(6)

Nevertheless, despite the fact that this sector, badly demands information for its activities, paradoxically, we find that its users are not versed, or at least well versed, in the use of information.

In developing countries, and this undoubtedly applies to Mexico, industrialists do not have a solid basis and experience as information users, due to a number of reasons which will not be further considered here. These drawbacks determine that, in many instances, difficulties arise from the beginning: is the information need clearly identified? how to pose the question? are there ways to obtain the precise data needed? or after all, is this data available?

Probably as a result of this weakness, a large number of industries or enterprises have not set up information units, whatever name is given to them. There is an information service vacuum, and the worst of it is that many countries also lack services acting as intermediaries between information needs and information resources. In order to cope with these gaps, emphasis has to be on people not only versed in a technical field, being it pharmacy, electronics, agribusiness or any other; a good and solid background and experience is also needed in activities related to the organization, handling and transfer of information.

There are other features which emerge out of this sector in terms of information needs: its promptness and practical value. The user of this sector requires data, information, to be applied at once

for the improvement, modification or innovation of specific products and processes.

In a few cases a man from industry, those industries which value information, is not willing to expend his time reading or analyzing a bunch of documents from which the specific data is to be obtained. He precious his time, and thus he seeks responses to his requirements, the sooner, the better.

One of the reasons for this urgency, or probably the main one, is that industrialists constantly face the challenge of competitivity.

Success or failure to enter a market is the result of appropriate information delivered on time, to industries aware of the benefit of information and capable of handling it.

Timeliness and appropriatness pose other challenges to information professionals who may need to cope with large amounts of data, in many instances unmanageable, if there were no means to handle it. Data banks, and other technologies applied to information have been, to a certain point, the solution, if carefully used and exploited.

There is the need to be fully aware of their potential, diverse applications, and specific characteristics, in order to take full advantage of such technologies, and value them in their right proportion.

Technology is but a means to offer services it is not the panacea, a consideration which is much more important to take into

account in developing countries, where economic resources can - not be waisted irrationally.

Finally, considerations about timeliness, appropriatness, disposition to pay for services rendered, lead us to two important aspects, that are more clearly patent in this sector than in any other:

a) information services must be priced. It is foolish to offer them for free, when users/clients will take advantage of them for - their economic benefit. They will improve or produce new products; or they will enter new markets at a national or international - level; or they will increase their production... or endless benefits, impossible to be listed here.

And closely connected with the pricing problem, there is:

b) the need to introduce marketing techniques for information services.

Probably more than in any other sector, a very aggressive attitude is required. Information is a good which has to be marketed in order to assure a wider acceptance, and thus a larger clientele. If these information services are not promoted, marketed and priced, what sort of entity, public or private, in developed and much more in developing countries is ready to offer them for free?

Being this the panorama of the sector, professionals serving it, - have to play different roles:

a) as information professionals, as such, for an adequate exploitation of a variety of sources and kinds of information, in order

to handle and interpret them adequately.

b) as information managers, in order to, among other activities, design the best means to deliver the appropriate information on time; to price products and services rendered and to make a constant and aggressive marketing of them.

c) as promoters, because they have to undertake, if the situation so demands, the role of somebody who "invites" people to use information and "convinces" them of its practical benefits; and finally,

d) as counsellors, to go with the user through the process of identifying the need, helping in making it explicit and even go - further once the problem has been detected and the pertinent - information provided. In many cases a follow up becomes indispensable in order to make sure that data is correctly used and applied.

These complexes roles are more pressing when interacting with small and medium sized industries, mostly in developing countries, where clients/users are, in general terms, diffident about the way they could be helped. This is why we, as information professionals, have to understand the nature of the sector served, of its various - levels of simplicity or sophistication, and thus of its real and - potential information needs, in order to make sure that information services and technological assistance are fully accepted. We have to know how people behaves from one department to the other, which are their peculiar concerns, problems and pressures, and determine the most adequate means of delivering information.

To perform these tasks, communication -formal and informal- plays here a vital role. "Only communication gives the valuable feedback, and it is a prerequisite condition of the supply of information."(7)

THE PROFESSIONAL OF INFORMATION SERVICES FOR INDUSTRY.

The setting just described and the characteristics of professionals serving it, makes us think that they require very particular apti-- tudes and attitudes. The question then would be: are there in our own local/national environments the adequate training programs that would guarantee that the industrial sector will have the information professionals needed?.

With the risk of seeming somehow pesimistic, the response, at least for the majority of Latin American countries, and certainly valid for Mexico, is negative.

It is true that a number of countries, offer nowadays, library/information programs at various levels, technical, bachelor's and even master's. But we are conscious that the problem is not that of the level of programs themselves, but rather of their content.

The emphasis of present curricula is more on academic than on professional aspects.

It is a vicious circle. There is not a wide and open market for - graduates of library schools in the industrial sector. -As indicated earlier, few industries or enterprises in developing countries, have set up their own information units, whatever name is given to them-.

On the other hand, if they join entities of this sort, it is with great personal effort that they have to find their own way within the working environment. On-the-job-training programs, more than anywhere else, are here indispensable. It might be that we face the dual process of offer and demand, and thus schools, at least in developing countries, tend to prepare more people for the sectors where the demand is higher. Although there might be valid reasons for justifying this approach, schools, to our understanding, can not disregard the need of this sector. Otherwise, where would professionals for it find the solid theoretical basis for the tasks they will perform?

It is not uncommon to see a number of professionals from other fields playing an adequate role as information specialists, but eventually their activities could be improved if formal education, along with a practical orientation would be given to them. And this support is rarely found.

Just to give an example of this situation, it would be worth indicating what is the Mexican scenery in this respect. To refer only to the master's level -there are 3 of them- there are courses, say on patents, but it's orientation is more towards historial aspects and patent procedures in different countries than to the identification and analysis of their value as technical documents. There are other courses on special information sources, and although some of these are pertinent for the industrial sector, most of them are of greater value for the academic. Very little is -

offered on aspects such as information technology, communications, creation and use of data banks, diverse administration techniques, and so forth.

Unfortunately this is one of the various examples where one can notice a divorce between the needs of the professional environment and the goals of the academic community. Due to the lack of formal training in this area, it would be interesting to indicate here how INFOTEC has proceed to prepare the people needed to offer information services.

People directly responsible for serving the clients, are professionals in different fields of knowledge. Along the years, a number of people have received practical training at institutions abroad: Denmark, Canada, the United States, where they have observed and learned how work is done in similar foreign institutions. It a is a very pragmatic approach. Senior people, in turn, is responsible for orienting the junior staff. But this is a process which takes time, at least an average of a couple of years to - fully rely on well trained professionals that would correctly - interpret the client's information needs, made explicit, in most cases, in terms of technological problems, that will carry out a search and locate the sources that would match the needs, and - that finally, would make the proper evaluation and digestion or analysis of the information sources, if required.

Engaged in information training programs, it is worth mentioning also that our senior staff has offered for the last few years, a three week course to people from Latin American countries working

for institutions similar to ours. For the last two years this course has given weight to information technological aspects, such as the creation and exploitation of data bases.

This very pragmatic approach has proved to be useful and convenient for INFOTEC. Nevertheless it should be valuable to share with you some of the more common problems that we have identified along these years particularly, with junior people:

a) they tend to stick to the sources they learned once, and there is the danger of overlooking other new or even old sources, unfamiliar to them.

b) in some instances the approach to particular sources is for locating information for the specific problem or problems which puzzled them at a given moment, but they tend to miss other bits or pieces of that source which at a certain point or for other questions could be as useful.

c) in our institution we certainly have noticed a poor use of some sources, such as bibliographies, even those specialized in any technological field.

d) the catalog is rarely used. In general, our people tends to rely more on the memory of library technical assistants, or other library personnel, than to look for themselves in the catalog.

These drawbacks could be partly solved if:

a) we had better trained users as university students, and professionals, in the use of information sources, and

b) academic institutions, or other entities would reinforce and in

crease formal programs, seminars, courses, that will focus on specific aspects required by information professionals -regard less of their background serving this sector. Both aspects, to which the most serious attention should be given.

The lack of formal programs is solved, in a few cases, by short-term actions-seminars, workshops-to mention a few, developed by individual entities when they feel these are required for offering or improving their information services. But probably most enterprises do not have, or do not find any means to cope with these gaps.

An immediate short term solution to this problem is that entities like INFOTEC should play a more active role in the development of human resources for information services. Pragmatism versus academic restrictions.

But the reality also is that a number of countries, and this is - true for Latin America, would raise their voice indicating that there are no such entities as INFOTEC, and that formal programs in universities are as weak, at least in this respect, as ours.

In our opinion universities should make an extra effort to identify the needs of this neglected sector, and define the means for offering formal education to candidates or interested people already working in this sector, which so directly impact the economic and social level of a country.

Considering the demands that may arise, it might not be foolish to contemplate, in the near future, courses offered by academia,

as well as by professional institutions.

It would probably be healthy to see such a competition; the emphasis or orientation of the programs, and the resources allocated to support them, -among other factors- could determine the selection from one setting to the other. In this respect we foresee the participation of professional associations, in order to guarantee their quality.

A final consideration is worth here. When talking about people needed to render services, there in not at all the assumption, much less the acceptance, that librarians are not required. For a number of tasks, for active and open interation with intermediaries, or even final users, a dynamic librarian is indispensible: an open minded person who fully understands and accepts this very peculiar information environment. But even for these professionals it is valid to ask ourselves if academic institutions are training them adequately.

In fact, Pauline Wilson, considering the need to change or reinforce library education, mentions that one of these reasons is precisely: "The discovery that the skills and knowledge of librarians are applicable to jobs in industry..."(8)

The response demands a serious and objective analysis.
The different aspects dealt with here; in terms of aptitudes and attitudes of these professionals, lead us to consider those areas which to our understanding, and from our experience, would be convenient to incorporate into formal programs, by academia or other

entities seriously interested on this aspect.

Without the pretension of being exhaustive, we will mention some of the following:

- knowledge about foreign and national technical and technological sources, such as specifications, vendor catalogs, technical reports, to mention just a few of them,
- use of data bases techniques, evaluation of their advantages and disadvantages in terms of ease of use, coverage, exhaustivity, cost, etc.
- information technology, creation of data banks, telecommunications, means of accesing various information formats.
- systems analysis-administration
- cost-benefit techniques, and evaluation methods
- promotional and marketing strategies and techniques.
- knowledge about the national and international information scenery, and how it affects or determines changes in the industrial sector.
- communications, identification of user's needs, how to approach - them, how to be accepted by the user and be effective.

A number of other stimulating and controversial topics have been - left out. But we never pretended to be exhaustive.

We would feel gratified if, at least, what has been here stated, - shakes and stimulates our minds to discuss our thoughts, to inquire more about our experiences, or to challenge our proposals. As we said at the begining, the important thing is to learn, always learn, in order to be better prepared for rendering first quality services to our users.

## REFERENCES


1. Ching, Chi-Chen. "Golden opportunites in the 80's for information professionals". p.10

2. Miller, William F. "New developments in technology and their implications for developed and developing countries". p.16

3. Quevedo, José. "Technical entrepreneurship and technological progress in developing countries". p.21

4. Naisbitt, John. Megatrends: ten new directions transforming our lives. p.17

5. Giuliano, Vincent E. "Productivity in the information society". p.85

6. Ljungberg, Sixten. "The place of the information service in the company structure". p.4

7. Ljungberg, S. Ibid. p.5

8. Wilson, Pauline. "Shall we change our name? Taking the library out of library education!" p.321

## BIBLIOGRAPHY


Borko, Harold. "Trends in library and information science education". Journal of the American Society for Information Science. 35(3):185-193, 1984

Ching, Chi-Chen. "Golden opportunities in the 80's for information professionals". Lecture delivered at the 12th Annual Alumni in Residence. Program honoring distinguished alumni. n.d. 22p.

Dosa Marta L. "Information transfer as technical assistance for development". Journal of the American Society for Information Science. 36(3):146-152, 1985

Griffiths, Jose-Marie and King, Donald W. "Educating the information professional of the future". In 1984: Challenges to an information society: Proceedings of the 47th ASIS - Annual Meeting. White Plains, New York, Knowledge Industry Publications, c 1984. p.68-73

Giuliano, Vincent E. "Productivity in the information society". -p.85.- In Strategies for meeting the information needs of society in the year 2000. Littleton, Colo., Libraries Unlimited, 1981.

Horton, Forest W. "The emerging information counselor". - ASIS Bulletin, 16-19, June 1982

Lancaster, F. Wilfrid. "The role of the library in an electronic society". In Clinic on library applications of data processing 1979. Urbana, Ill., 1980. p.162-191

Ljungberg, Sixten. "The place of the information service in the company structure". In The 1980 FID/II Annual International Meeting, (20th) 15-17 August 1980. Copenhagen, - Denmark, 8p

Miller, William F. "New developments in technology and their implications for developed and developing countries." Lecture delivered at El Colegio de México, March 5, 1985. 29p.

Naisbitt, John. Megatrends: ten new directions transforming our lives. New York, Warner Books, 1982

Quevedo P., José. "Technical entrepreneurship and technological progress in developing countries". Paper delivered at the "International Seminar Institutional linkages in technological development", Nov. 25-28, 1985, Sao Paolo, Brazil. 26p.

Wasserman, Paul. "Invention and design of information - services". Infomediary, 11-16, 1985

Wilson, Pauline. Shall we change our name? taking the - library out of library education. American Libraries v.12(5) 321-326, May 1981